REMARKS/AMENDMENTS

The rejections presented in the Office action dated June 17, 2004 have been considered. Claims 1-14, 17-34 and 36 remain pending in the application. Claims 15, 16 and 35 have been canceled without prejudice or disclaimer. Claims 14, 17, 23, 24, 27, 28, 33 and 36 have been amended. Reconsideration and allowance of the application as amended is respectfully requested.

The Examiner has requested that the Applicants assist in correcting any errors in the Specification that the Applicants may become aware of (see Office Action paragraph 50). The Specification has been reviewed in an effort to cooperate in this regard. Two grammatical errors were discovered, and have been corrected by way of amendment to the Specification.

The Specification was objected to due to the word "illustrating" in the phrase "...described below that illustrates illustrating the need..." (see Office Action paragraph 51). The Applicants thank the Examiner for identifying this typographical error. The appropriate correction has been made and withdrawal of the objection is requested.

Claim 2 stands rejected under 35 U.S.C. §112, ¶2 for lacking antecedent basis pertaining to the phrase "the other agents." The Applicants respectfully traverse the rejection, and disagree that the identified phrase lacks antecedent basis. Claim 1 refers to "...other agents having ownership of the bus...." The phrase "the other agents" in Claim 2 properly refers to the "other agents" of Claim 1, and the Applicants thus believe that Claim 2 complies with 35 U.S.C. §112, ¶2. Withdrawal of the rejection is respectfully requested.

Claim 36 also stands rejected under §112, ¶2 for lacking antecedent basis. The Examiner's assumption that Claim 36 should have been dependent from Claim 35 was correct, and the Applicants thank the Examiner for noting this inadvertent omission. By way of other amendments to Claim 36, Claim 36 now complies with 35 U.S.C. §112, ¶2.

Claims 1-13 stand rejected under 35 U.S.C. §102(b) as being anticipated by *Lange* (U.S. Patent No. 6,055,598). The Applicants respectfully traverse the rejection. More particularly, the Applicants respectfully contest the Examiner's correlation of claimed recitations and the cited portions of *Lange*. For example, Claim 1 includes allocating ownership of a bus to certain agents based on a predetermined bus arbitration order. An

example of such a predetermined bus arbitration order is a rotational priority (see, *e.g.*, page 22, lines 17-19). This claim recitation is therefore involved with a manner of allocating ownership of a bus, and does so according to a predetermined bus arbitration order. The portion of *Lange* cited in the Office Action that is cited as teaching this language is identified as *Lange*, column 3, lines 45-50 relates to the order that command responses will be sent, and does not teach bus grants or other allocation of bus ownership as claimed. The Applicants respectfully submit that *Lange*'s disclosure that the storage of commands in a memory queue in a particular sequence refers to the order that the command responses are queued, and does not describe granting ownership of the bus or other bus allocation.

Further, Claim 1 recites that command processing priority is granted to the agents in lieu of granting command processing priority to other agents that would otherwise "own" the bus at a given time. The cited portion of *Lange* at column 3, lines 40-57 relates to providing command responses in a sequence relating to the order of completion of a command rather than in an order of initiation of those commands. This addresses command response throughput and minimizing the accumulation of commands (see col. 3, lines 3-4). In the present invention, a primary issue is data starvation due to an agent being granted ownership of the bus but being unable to have its request processed due to timing considerations. As set forth in Claim 1, command processing priority is granted to agents according to a predetermined bus arbitration order, which is overridden by granting command processing priority to agents associated with command retries, which addresses data starvation versus moving command responses more quickly. The cited prior art does not describe bus arbitration. It is respectfully submitted that the cited prior art does not teach the claimed recitations of Claim 1, and is therefore not anticipated by the cited prior art.

Dependent Claims 2-9 and 11-13, which are dependent from independent Claim 1, also stand rejected under 35 U.S.C. §102(b) as being unpatentable over *Lange*. While the Applicants do not acquiesce with the particular rejections to these dependent claims, it is believed that these rejections are moot in view of the remarks made in connection with independent Claim 1. These dependent claims include all of the limitations of Claim 1 and any intervening claims, and recite additional features which further distinguish these claims from

the cited references. Allowance of dependent Claims 2-9 and 11-13 is therefore also respectfully solicited.

Claims 14, 18, 19, 21, 22, and 35 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,029,217 to *Arimilli et al.* (hereinafter *Arimilli*). Independent Claim 14 has been amended to more clearly set forth one aspect of the invention and to facilitate prosecution of these rejected claims. Claim 14 has been amended to indicate that controllable configuration parameters are received to identify a desired processing ratio in which to process the standard commands relative to the retried commands. One advantage of the present invention is the ability to control the relative rates at which the commands and retried commands are processed. In this manner, fairness to retried commands which can experience data starvation may be serviced, while allowing command throughput to remain at or migrate to a desired level. This provides for a sliding scale of "controllable fairness" to the retried commands, ranging from no fairness (*e.g.*, accepting the possibility of data starvation) to total fairness (*e.g.*, retried commands receiving top priority). This is supported in numerous passages and figures of the originally filed Specification, including but not limited to page 29, line 10 through page 32, line 8. *Arimilli* does not teach the use of configuration parameters to indicate a relative rate of processing standard commands and retried commands, and consequently cannot further teach the controllability of such configuration parameters. Therefore, independent Claim 14 is not anticipated by *Arimilli*.

Before addressing the remaining claims subject to this rejection (*i.e.* Claims 18, 19, 21, 22 and 35), the Examiner's 35 U.S.C. §103(a) rejection to dependent Claims 15-17 is first considered. Dependent Claims 15-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Arimilli* as applied to Claim 14, and further in view of U.S. Publication No. 2002/0138670 to *Johnson*. The Examiner acknowledges that *Arimilli* did not teach adjusting a ratio in which commands issued according to the predetermined bus cycle and the commands associated with the queued agent identifiers will be processed, but contends that *Johnson* remedies this deficiency. The amendment to Claim 14 sets forth that one or more configuration parameters are received that are indicative of a desired processing ratio for the standard and retried commands. As indicated above, *Arimilli* does not teach nor suggest at least this claimed

feature. It is respectfully submitted *Johnson* fails to teach or suggest the receipt of controllable configuration parameters indicative of a ratio in which such commands will be processed relative to one another. According to M.P.E.P. § 2143, the combination of references must teach or suggest all of the claim limitation. It is respectfully submitted that neither *Arimilli* nor *Johnson*, either alone or in combination, teach or suggest at least this feature, and therefore the combination fails to render Claim 14 obvious. For at least this reason, the Applicants submit that Claim 14 is not anticipated by *Arimilli*, nor is it rendered obvious by a combination of *Arimilli* and *Johnson*.

Dependent Claims 15 and 16 have been canceled, and the rejections to these claims are now moot. Dependent Claim 17 has been amended to be dependent from Claim 14. Similarly, dependent Claims 18, 19, 21, 22 are dependent from amended Claim 14. While the Applicants do not acquiesce with the particular rejections to dependent Claims 17-19 and 21-22, it is believed that these rejections are now moot in view of the amendments and remarks made in connection with amended Claims 14. Dependent Claims 17-19 and 21-22 are therefore also in condition for allowance.

Independent Claim 35 was also rejected as being anticipated by *Arimilli*. To facilitate prosecution of the application, Claim 35 has been canceled, and the rejection to Claim 35 is therefore moot.

Dependent Claim 36, which stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Arimilli* in view of *Johnson* (see Office Action paragraphs 40 and 44), has been rewritten in independent form. The Applicants respectfully traverse the rejection to Claim 36. A combination of *Arimilli* and *Johnson* fails to teach at least the controllability of a frequency in which the command processing is granted priority to the agents corresponding to the queues agent identifiers relative to the other agents having ownership of the bus. Further, Claim 36 is written in means-plus-function format invoking 35 U.S.C. §112, ¶6, which requires identical function in the prior art, which is not found in the cited combination of references. In addition, pursuant to M.P.E.P. § 2182 and *In re Donaldson Co.*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994), the Examiner carries the initial burden of proof for establishing that the prior art structure is the same as or equivalent to the structure described in the specification

which has been identified as corresponding to the claimed means. FIG. 7 of the Applicants' application illustrates an exemplary embodiment of means for controlling the frequency in which the command processing is granted priority to the agents corresponding to the queues agent identifiers relative to the other agents having ownership of the bus. No structure has been identified in *Arimilli* or *Johnson*, either individually or in combination, that is the same or equivalent to that described in the Applicants' Specification, and the Applicants contend that these cited references do not describe such structure. For at least this additional reason, the Applicants submit that Claim 36 is in condition for allowance.

Claim 10 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Lange* as applied to Claim 9, and in further view of *Johnson* (U.S. Publication No. 2002/0138670). The Applicants respectfully traverse the rejection. The Applicants submit that the cited teaching of *Johnson* does not address the claimed recitation that the disregarding of granting command processing priority is performed according to a configurable pattern. Even assuming *arguendo* that such references were properly combined, the combination fails to teach at least this limitation. No "pattern" of disregarding the retried commands relative to the other commands is described in the combination. For at least this reason, the cited combination fails to teach all of the claim limitations as required by M.P.E.P. § 2143, and it is respectfully submitted that Claim 10 is allowable over the cited combination of references.

Claims 23-31, 33, and 34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Arimilli* and *Johnson*. Independent Claim 23 has been amended to facilitate prosecution of the application, and to address particular aspects of the invention as originally disclosed. More particularly, Claim 23 has been amended to reflect that the frequency in which the command processing is granted priority to some agents relative to others is dynamically controlled. This is supported by the original Specification at, for example, page 31, lines 12-14. It is respectfully submitted that a combination of *Arimilli* and *Johnson* fail to teach or suggest any dynamic control of a frequency in which agents are granted priority relative to one another. Because the combination of references must teach or suggest all of the claim limitations, the cited combination fails to render Claim 23 obvious, and Claim 23 is therefore in condition for allowance. Independent Claims 27 and 33 have been amended similarly to that of Claim 24 in

the sense that the queue output throttle is dynamically configurable, and are also allowable over the cited combination of references.

The Applicants note that Claim 24 was also objected to under 37 C.F.R. § 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 24 has been amended and complies with 37 C.F.R. § 1.75(c). Withdrawal of the objection is respectfully solicited. Further, Claims 24-26 are dependent from amended Claim 23, Claims 28-32 are dependent on amended Claim 27, and Claim 34 is dependent on Claim 33. These claims are dependent on their respective base claims and any intervening claims, and are also in condition for allowance.

Claim 20 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Arimilli* as applied to Claim 14, and in further view of *Lange*. As previously described, Claim 20 has been amended and it is respectfully submitted that *Arimilli* fails to teach the claimed features of Claim 14 from which Claim 20 depends. *Lange* similarly does not teach the use of configuration parameters to indicate a relative rate of processing standard commands and retried commands, and consequently cannot further teach the controllability of such configuration parameters. Because neither of these references teaches at least these claimed features, a combination of *Arimilli* and *Lange* fails to collectively teach such claimed features. As Claim 20 is dependent from Claim 14, Claim 20 is allowable over the cited prior art.

Claim 32 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Arimilli* and *Johnson* as applied to Claim 27, and in further view of *Lange*. As previously described, Claim 27 has been amended and it is respectfully submitted that a combination of *Arimilli* and *Johnson* fail to teach the claimed features of Claim 27 from which Claim 32 depends. *Lange* similarly does not teach a dynamically configurable queue output throttle. Because none of *Arimilli*, *Johnson* or *Lange* teach as least this claimed features, a combination of *Arimilli*, *Johnson* and *Lange* fail to collectively teach this claimed feature. As Claim 32 is dependent from Claim 27, Claim 32 is allowable over the cited combination of references.

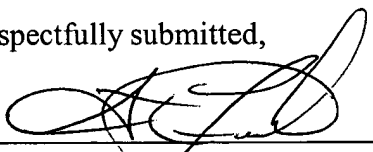
The Applicants do not acquiesce that a proper motivation to combine the various references cited in the 35 U.S.C. §103(a) rejections to Claims 10, 15-17, 20, 23-32, 33-34 and 36. For example, *Lange* relates to providing command responses in a sequence relating to the

order of completion of commands rather than in an order of initiation of those commands. This addresses command response throughput and minimizing the accumulation of commands (see col. 3, lines 3-4). Neither *Arimilli* nor *Johnson* is directed to such a problem. It is respectfully submitted that there is no motivation to combine the teachings of *Lange* with *Arimilli* or *Johnson*, and any such combination is made with the benefit of hindsight. The Applicant defers additional comment on motivation as *prima facie* obviousness is not met for at least these reasons and because the cited combinations of references do not teach all of the claim limitations as set forth above.

CONCLUSION

The Applicants respectfully submit that the pending claims are patentable over the cited prior art of record, and that the application is in condition for allowance. If the Examiner believes it necessary, the undersigned attorney of record may be contacted at (651) 686-6633 (x110) to discuss any issues related to this case.

Respectfully submitted,



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